who completed three psychometric instruments prior to priming for stem cell collection and at approximately day 42 post ASCT. The three instruments are the Functional Assessment of Cancer Therapy – Bone Marrow Transplant (FACT-BMT), measuring quality of life; Brief COPE, measuring coping with illness; and Profile of Mood States (POMS) short form, measuring mood states.

In comparisons of patient and transplant characteristics including (but not limited to) gender, race, diagnosis, length of stay, and readmissions, the following significant differences were found between patients 60+ and under 60 years of age: Patients 60+ had a slightly longer length of stay (median 21 vs. 20 days, $p = 0.013$), were more likely to have NHL (75% vs. 61%), and less likely to have Hodgkins (2% vs.19%, $p < 0.001$).

Many significant differences were found in quality of life scores between patients 60+ and under 60. Patients 60+ reported better social, emotional, and functional well-being at both pre-transplant and at day 42 post-transplant ($p \leq 0.05$). The 60+ group also reported better physical well-being at pre-transplant compared to the under 60 group ($p = 0.022$). Regarding significant differences in coping, the 60+ group used less coping techniques of self-distraction, behavioral disengagement, venting, planning, humor, and self-blame, but reported more acceptance in coping with illness ($p \leq 0.05$). There are four significant differences between the two groups on mood states but only at pre-transplant. The 60+ group reports less depression, anger, tension, and confusion than the under 60 group ($p \leq 0.05$). It is surprising patients over 60 report better quality of life, better mood states, and less utilization of coping techniques. It seems that older patients are more accepting of illness and impact on functioning, perceive themselves as not needing as much support to cope, and report less negative impact on mood states than their younger counterparts.

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LONG-TERM FOLLOW-UP AFTER ALLOGENEIC HEMATOPOIETIC PROGENITOR CELL TRANSPLANTATION IN PEDIATRIC PATIENTS-MULTICENTER STUDY

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Hematopoietic progenitor cell transplantation (HPCT) remains a salvage therapy for both malignant and non-malignant disorders. However, it may result in late sequelae which negatively influence the quality of life. The aim of this study was to evaluate the long-term impact of HPCT on the patients' health status. Two hundred thirty one patients, who survived over one year after allogeneic HPCT were included into the study. The median age at HPCT was 11.5 years (from 4 months to 18 years), the median follow-up period was 3.5 years (from 13 months to 12 years). One hundred eighty three subjects were transplanted due to malignant diseases (group I) and forty eight due to non-malignant disorders (group II). The frequency of late side effects, including chronic Graft-versus-Host Disease (GvHD), endocrinal dysfunctions and organs impairment, were compared between two groups using chi^2 test.

Only 65 (28.1%) patients in the study group did not suffer from any health problems. During the follow-up 15 (8.2%) patients in group I died due to late complications (6 cGvHD, 5 infections, 2 second neoplasm, 1 pulmonary artery thrombosis, 1 haemorrhage). In group II two (4.2%) patients died (1 cGvHD, 1 haemorrhage), $p = 0.34$. The incidence of late sequelae in group I and II was documented respectively: cGvHD 86 (47%) vs 10 (20.8%), $p = 0.001$; ocular complications 39 (21.3%) vs 4 (8.3%), $p = 0.04$; skin problems 69 (37.7%) vs 6 (12.5%), $p = 0.0009$; hormonal dysfunction 64 (35%) vs 19 (39.6%), $p = 0.55$; pulmonary complications 55 (30%) vs 9 (18.7%), $p = 0.12$; bone and joint impairment 32 (17.5%) vs 4 (8.3%), $p = 0.12$; cardiological dysfunction 25 (13.7%) vs 5 (10.4%), $p = 0.55$; kidney problems 5 (2.7%) vs 3 (6.2%), $p = 0.23$; neurological disorders 10 (5.5%) vs 1 (2.1%), $p = 0.16$; second neoplasm 3 (1.6%) vs 1 (2.1%), $p = 0.83$.

Conclusions: Majority of survivors after allogeneic HPCT develop late sequelae. Patients transplanted with the diagnosis of malignant disease are at higher risk of cGvHD resulting in further complications, mainly skin and ocular problems. Higher incidence of cGvHD in this cohort of patients may be due to less intensive immunosupressive therapy in comparison to the subjects transplanted due to non-malignant diseases. The impact of chemotherapy used in the treatment of malignancies prior to HPCT should also be taken into consideration. The multidisciplinary monitoring for a prolonged period of time after HPCT is strongly recommended.

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MUSCLE WEAKNESS FOLLOWING ALLOGENEIC STEM CELL TRANSPLANTATION: ANALYSIS OF RISK FACTORS

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Allogeneic stem cell transplantation (allo-SCT) can cause severe adversed effects, which is associated with functional impairment and muscle weakness. In this study, we analyzed factors affecting muscle weakness after allo-SCT in 21 patients (13 male, 8 female) who had allo-SCT at Ehime Prefectural Central Hospital from April 2007–March 2009, Patient ages ranged from 26–64 (median 46 years) at the time of allo-SCT. Sixteen patients received stem cells from unrelated donors, and 5 received them from related donors. A myeloablative conditioning regimen was chosen for 14 patients, and 7 patients had a reduced intensity conditioning regimen. The patients received lower extremity muscle training while muscle strength was measured at the same time by a therapeutic exercise system (Strength Ergo 240, Mitsubishi Electric Corp., Tokyo, Japan). Percent changes of lower extremity muscle strength before allo-SCT and 100 days after allo-SCT for each patient was calculated, and muscle strength was also compared using the Mann-Whitney U test between groups divided by various factors. The average percent change of lower extremity muscle strength was $-22.1 \pm 24.3\%$, and age group (26-46 vs. 47-64 years), sex, and conditioning regimens (myeloablative or non-myeloablative) did not significantly affect muscle strength. Patients who had higher does of steroids showed a tendency towards greater decreases in muscle strength (high dose, $-31.0 \pm 21.0\%$ vs. low dose, $-12.3 \pm 24.8\%$, $P = 0.057$). Source of stem cells (unrelated, $-28.8 \pm 24.0\%$ vs. related, $-0.5 \pm 6.1\%$, $P = 0.026$), grades of acute GVHD (grades 0-2, $-15.4 \pm 19.1\%$ vs. grades 3-4 $-62.2 \pm 1.1\%$, $P < 0.01$), and levels of serum albumin (≥ 3.4 g/dl, $-12.5 \pm 16.5\%$ vs. <3.4 g/dl, $-34.8 \pm 28.0\%$, $P = 0.047$) significantly affected the decrease of muscle strength. Our study suggests that muscle strength may be affected by the source of stem cells, nutritious status and complications after allo-SCT, and, patients at risk should receive more intensive therapy to prevent loss of muscle strength after transplantation.

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A LONGITUDINAL COMPARISON OF QUALITY OF LIFE (QOL) IN PATIENTS WITH MYELOID MALIGNANCIES UNDERGOING ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION (ALLOHCT) USING MYELOABLATIVE (MY) OR REDUCED INTENSITY CONDITIONING (RIC)

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There are limited data on the impact of intensity of conditioning on QOL in patients undergoing alloHCT. We undertook a prospective study to evaluate the outcomes and QOL in patients with myeloid malignancies undergoing alloHCT using MY or RIC. 115 patients were enrolled from Jan 2005 to Sep 2008 and no significant differences in the outcomes were observed in the two study cohorts at 1-year (abstract submitted separately).

Of 115 patients, 105 (91%) patients (MY, 44; RIC, 61) consented to participate in QOL study with QOL assessments at baseline, day30, day100, day180 and day365. QOL was assessed by the following measures: European Organization for Research and Treatment of Cancer core 30-item questionnaire (QLQ-C30), Functional Assessment of Cancer Therapy-bone marrow transplantation subscale (FACT-BMT), FACT anaemia and fatigue subscale (FACT-An),

Hospital Anxiety and Depression Scale (HADS) and Lawton and Brody's instrumental activities of daily living.

Apart from age, both cohorts were well matched for baseline characteristics. The median age of patients undergoing RIC was significantly higher to those undergoing MY conditioning (59 vs. 42 yrs, $p < 0.0001$). The compliance for completion of QOL assessments was: baseline, 98%; Day30, 91%; day100, 85%; day180, 84%; and day365, 85%. The main reason for non-compliance was illness due to toxicity or disease relapse.

QOL data were analyzed for both cohorts without imputation. QOL scores did not differ for the two study groups at baseline. There was a decline in QOL scores in post transplant period with lowest scores at day30 followed by subsequent slow improvement to baseline by day365. The RIC cohort had better QLQ-C30 scores in the domains of physical functioning ($p = 0.005$) and role functioning ($p = 0.02$) at day30. No other significant differences were noted between the two groups at other time points. Recovery post transplant was similar in the two cohorts. In a multivariate analysis, clinically meaningful differences in favor of RIC cohort were observed in the role functioning domain of QLQ-C30. In addition, patients with HCT-comorbidity scores ≥ 3 had significantly worse scores for emotional functioning and global health domain of QLQC-30, FACT-BMT, FACT-An and HADS.

Imputing QOL data using worst scores for patients who did not complete QOL questionnaire due to illness did not significantly influence the above results.

We conclude that both MY and RIC regimens resulted in similar QOL at 1-year post transplant.

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IMPLEMENTATION OF A HEMATOLOGICAL MALIGNANCY-BASED SURVIVORSHIP CLINIC

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Background: There are approximately 12 million cancer survivors in the U.S. Cancer survivors are at increased risk for health complications such as heart disease, secondary malignancies, and psychological distress. Reflecting the needs of cancer survivors as part of our health care system, the Institute of Medicine issued a seminal report, From Cancer Patient to Cancer Survivor: Lost in Transition, recognizing cancer survivorship as a "distinct phase of cancer care." A dedicated survivorship clinic with creation of personal care plans and treatment summaries can serve the needs of this growing cohort of patients.

Objective: To determine the viability of a transplant/hematological malignancy-based survivorship clinic with treatment summary and care plan for survivors.

Methods: A literature search was initiated examining recommendations and guidelines regarding follow-up of cancer patients. We incorporated and consolidated guidelines from ASCO, NMDP, NCCN, and COG, pertinent articles from the PubMed database, and the growing literature for cancer survivorship. Awareness of the program was to be initiated with letters to affiliated physicians, lecture series, patient-oriented educational handouts, and articles in the hospital literature.

Data Synthesis: A treatment care plan was devised for all survivorship clinic patients. This care plan summarized patients' prior care with recommendations for follow-up such as cardiac and cancer screening, osteoporosis, thyroid disease, and vaccination schedules–all based on our consolidative review of available evidence-based or expert guidelines. A referral base was developed with specialists focused on lymphedema, psychiatric issues (needs determined by screening tools), social work, art therapy, exercise, and nutrition.

Results: Patients from affiliated hematologists/oncologists were seen in the survivorship clinic. Unique care plans were devised for them based on their history of having had a hematologic malignancy or a stem cell transplant. A satisfaction survey was to be implemented. Preliminary satisfaction from both physicians and the patients themselves was positive.

Conclusion: A transplant/hematologic malignancy-based survivorship clinic is feasible and fills an important need in a large, urban, hospital-based cancer center. Further investigation will focus on developing a computer-based treatment summary and care plan, increasing patient referrals, and developing a lecture series devoted to survivorship.

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OUTCOME OF SOLID ORGAN TRANSPLANT FOLLOWING BLOOD AND MARROW TRANSPLANT (BMT) IN PEDIATRIC PATIENTS

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Blood and marrow transplant (BMT) may be curative for children with malignancies as well as life-threatening non-malignant diseases. However, permanent organ failure may result from conditioning regimens or other BMT-related toxicities. Solid organ transplant (SOT) may be indicated for a select group of pediatric patients, but this poses difficult decisions for families and caregivers. There is limited information available about the outcome of children who received SOT following BMT. At the Children's Hospital of Philadelphia, we have identified eight children (4 males) who have received a solid organ transplant following a BMT. Patients (pts) were 6 months to 18 years at the time of BMT. Diseases for which BMT was indicated included: thalassemia, Wiskott-Adrich syndrome, Shwachman-Diamond/bone marrow failure, sickle cell disease (SCD), erythopoetic porphyria (EP), acute lymphoblastic leukemia, chronic granulamotous disease, and neuroblastoma. BM donors were matched sibling in 4, unrelated in 3, and autologous for one. Time from BMT to SOT was 13 days-7 years (median, 27 months), with two pts <2 months who received liver transplants. Indications for liver transplant included VOD (2), chronic GVHD (1).Lung SOT was performed for 2 pts with bronchiolitis obliterans (2), and kidney transplants for 3 pts with renal failure. Three of the organs were from a living related donor (2- liver, 1-kidney), and 5 were cadaveric organs. Four pts were on immunosuppressant agents at the time of the SOT: 2 pts <2 months from BMT on a cyclosporine infusion, one pt on tacrolimus for treatment of BOOP, and one pt with EP on both azathioprine and prednisone due to a previous liver transplant. Seven pts (2-lungs, 2-liver, 3-kidney) are alive with functioning allografts two to 157 months from SOT. One pt with thalassemia developed multiple mesenteric artery thromboses following two attempts at liver transplant and died. Advances in organ procurement, operative technique, immunosuppressant therapy and infection control may allow SOT for a select group of pts post BMT. However, scarcity of donor organs available in a timely fashion continues to be a limiting factor. Children who have undergo BMT and develop single organ failure should be considered for a solid organ transplant if there is a high likelihood of cure of the primary disease.

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FIRST DESCRIPTION OF A SUCCESSFUL PREGNANCY AFTER MYELOABLATIVE STEM CELL TRANSPLANTATION IN A SICKLE CELL PATIENT BY MEANS OF AN OVARIAN TISSUE AUTOGRAFT

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The preservation of fertility is an emerging concern in patients treated by myeloablative hematopoietic stem cell transplantation (HSCT). One major drawback of autologous gonadic tissue transplant being the risk of leukemia recurrence, this procedure is first to be proposed to patients allografted for non malignant diseases. Cryopreservation of ovarian tissue with subsequent autotransplantation is an emerging procedure that has led to 6 reported births until today, none of them being obtained after HSCT. Moreover, 3 of these 6 pregnancies were obtained through *in vitro* fertilization procedures. We report the restoration of ovarian activity followed by pregnancy and live birth after an orthotopic transplantation of ovarian tissue in a 19 year old female patient transplanted for sickle cell anemia. The patient having experienced a CNS stroke received an